

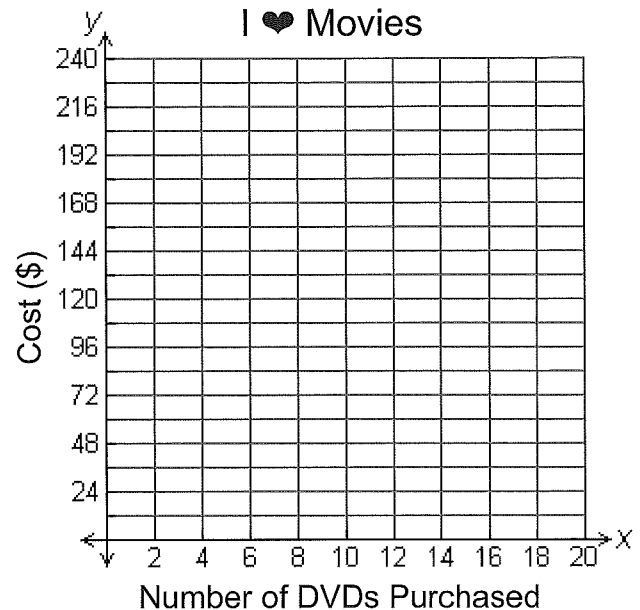


What's the Difference?

Pattern A:

Members of the "I ♥ Movies" club are able to purchase DVDs at a discounted rate of only \$12 each. Complete the table and graph below to show the cost for members who purchase various numbers of DVDs:

I ♥ Movies			
# of DVDs Purchased (x)	Cost (y)	Write the ratio $\frac{y}{x}$ as a:	
		Fraction	Decimal
2			
5			
11			
16			
x			



- What patterns do you notice in the table and/or the graph?
- What would be the cost to a member who purchases 15 DVDs? Justify your answer.
- If a member only wants to spend \$90, what is the maximum number of DVDs he can purchase? Justify your answer.
- What is the cost to a member who doesn't purchase any DVDs? Where is this cost represented on the graph?



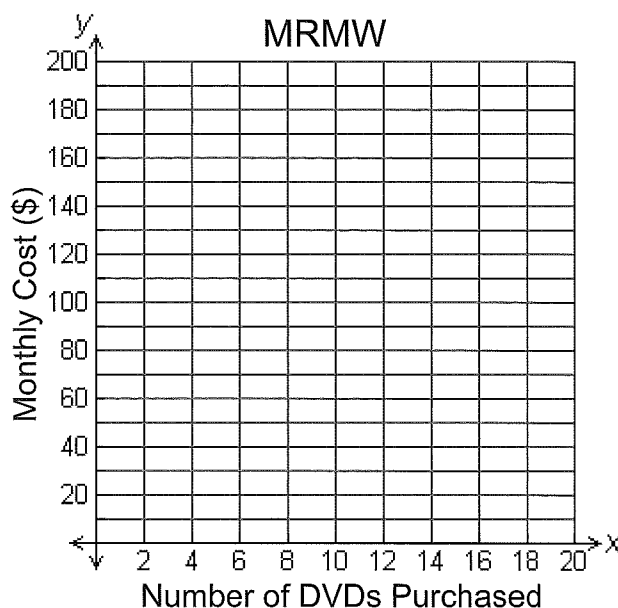
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What's the Difference?

Pattern B:

The "Movies Rock My World" club (also known as MRMW) charges its members a monthly fee of \$15. In return, members may purchase DVDs from the club's selection for only \$8 each. Complete the table and graph below to show the cost for 1 month to members who purchase various numbers of DVDs:

MRMW			
# of DVDs Purchased (x)	Monthly Cost (y)	Write the ratio $\frac{y}{x}$ as a:	
		Fraction	Decimal
5			
10			
15			
20			
x			



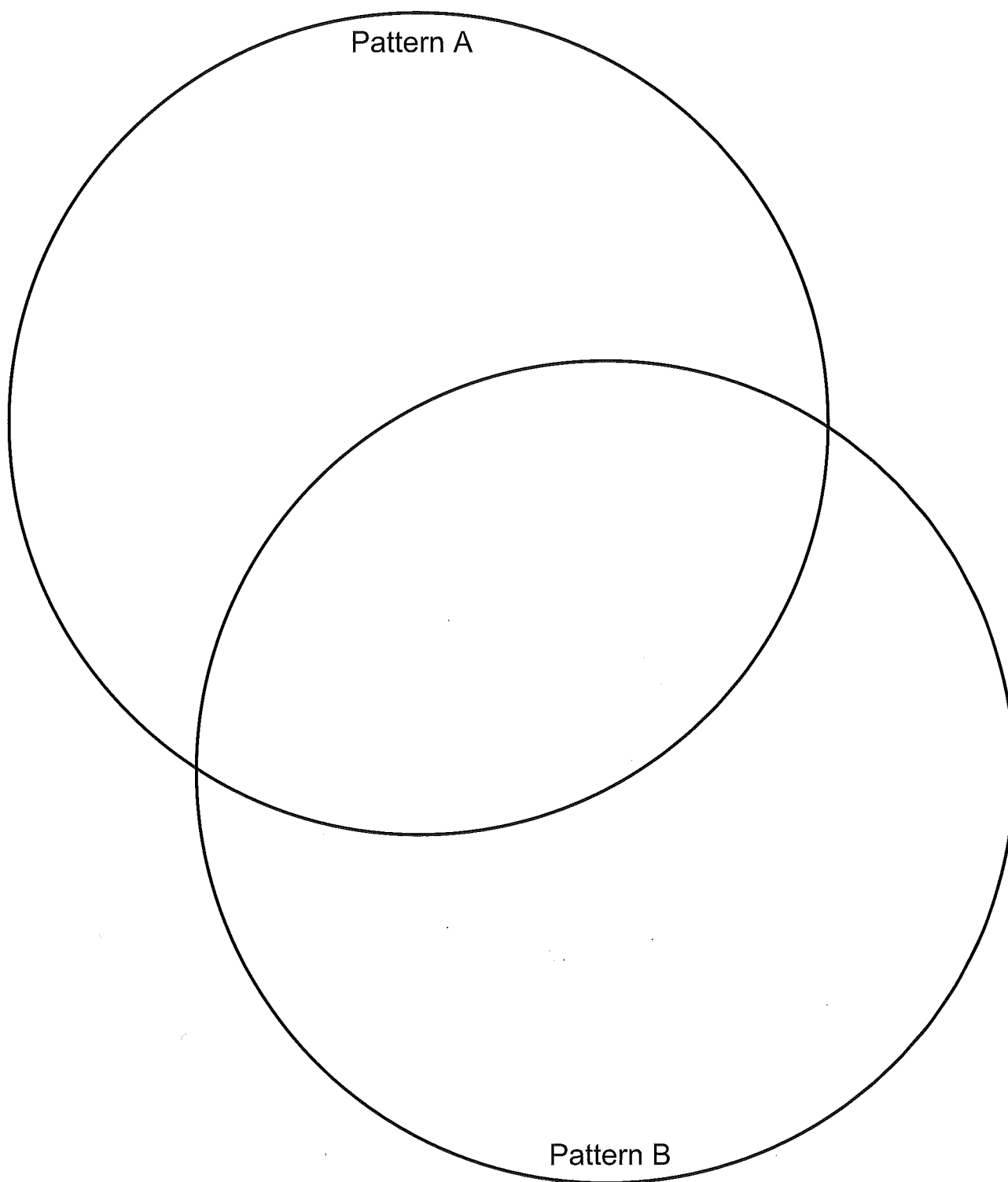
- What patterns do you notice in the table and/or the graph?
- What would be the cost to a member who purchased 12 DVDs in 1 month? Justify your answer.
- If a member only wants to spend \$80, what is the maximum number of DVDs he can purchase that month? Justify your answer.
- What is the cost to a member who doesn't purchase any DVDs during a month? Where is this cost represented on the graph?



What's the Difference?

Summary:

Use the Venn diagram below to compare and contrast Pattern A and Pattern B. Record your observations of each pattern in the appropriate region of the Venn diagram.





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Independent Practice

A proportional relationship can be identified by looking at the:

- table to see if there is a constant rate of change and a constant of proportionality
- graph to see if it is a line that passes through the origin
- equation to see if it fits the form $y = kx$

Proportional Relationship

A candy necklace costs \$1.20. Jaiden wants to buy candy necklaces for all of her friends, but only has \$15.00 to spend. How many necklaces can Jaiden purchase with \$15?

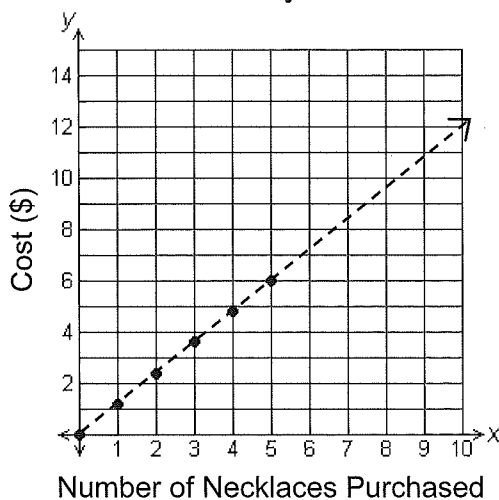
Jaiden's Candy Necklaces

# of necklaces (x)	Cost (y)	Value of $\frac{y}{x}$
1	\$1.20	1.2
2	\$2.40	1.2
3	\$3.60	1.2
4	\$4.80	1.2
5	\$6.00	1.2
x	1.2x	

There is a constant rate of change of \$1.20 per necklace and the equation fits the form $y = kx$

There is a constant of proportionality of 1.2

Jaiden's Candy Necklaces



The graph is a line which passes through the origin.

To determine the number of candy necklaces Jaiden can purchase with \$15, extend the table or the graph, or solve the equation $15 = 1.2x$. Jaiden can purchase 12 candy necklaces with \$15.

Non-proportional Relationship

A health club charges \$30 per month as a membership fee. Members can enroll in fitness classes for \$10 per class. How many classes could Monica take in one month for \$100?

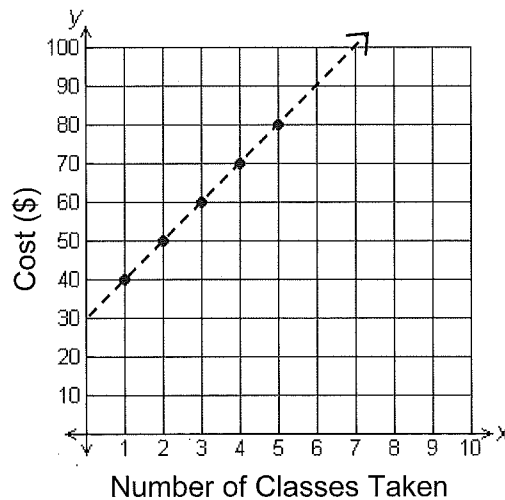
Monica's Fitness Classes

# of classes (x)	Cost (y)	Value of $\frac{y}{x}$
1	\$40	40
2	\$50	25
3	\$60	20
4	\$70	17.5
5	\$80	16
x	$30 + 10x$	

There is a constant rate of change of \$10 per class but the equation does NOT fit the form $y = kx$

There is NOT a constant of proportionality

Monica's Fitness Classes



The graph is a line but does NOT pass through the origin.

To determine the number of classes Monica can take with \$100, extend the table or the graph, or solve the equation $100 = 30 + 10x$. Monica can take 7 classes for \$100.



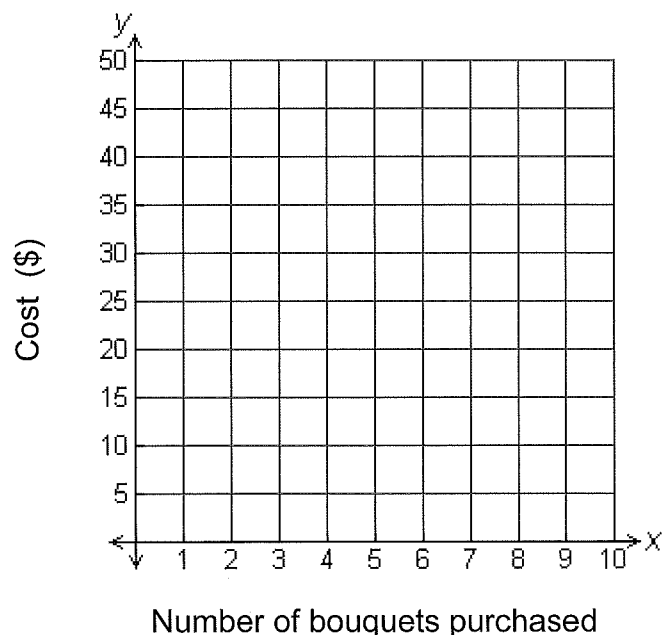
- 1 A candy necklace costs \$1.20. Jaiden wants to buy candy necklaces for all of her friends, but only has \$15.00 to spend. Jaiden asks her brother to drive her to the store so that she can purchase the candy necklaces for her friends. He agrees, but only after she gives him \$5.00 for gas money. Now Jaiden only has \$10.00 to spend. What is the maximum number of candy necklaces she can purchase? Justify your answer.

- 2 Tulips are on sale at Flowers R Us this week. You can buy a bouquet of a half-dozen tulips for \$5.00. Complete the table and the graph based on this information:

Tulip Bouquets

Number of bouquets purchased	Cost in dollars
1	
2	
3	
4	
5	
10	
x	

Tulip Bouquets



- a) Does this describe a proportional relationship? Justify your answer.

- b) How much would it cost to purchase 25 bouquets? Justify your answer.

- c) How many bouquets could be purchased with \$45? Justify your answer.



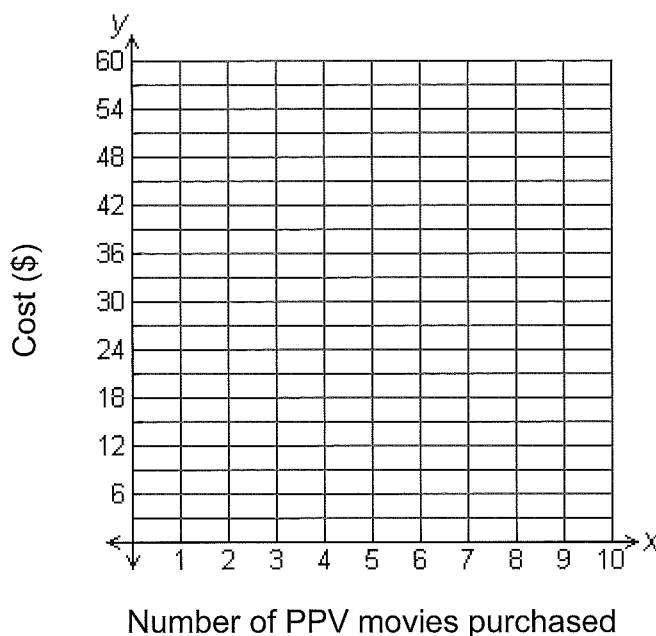
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- 3 A cable company charges \$30 per month for basic service. Pay-per-view movies can be purchased for an additional \$3.00 per movie. Complete the table and the graph based on this information:

Pay-per-view Movies

Number of PPV movies purchased	Cost in dollars
1	
2	
3	
4	
5	
10	
x	

Pay-per-view Movies



- a) Does this describe a proportional relationship? Justify your answer.
- b) How much would it cost to purchase 8 pay-per-view movies? Justify your answer.
- c) How many pay-per-view movies could be purchased with \$50? Justify your answer.



Relaxing Getaways

The Relaxing Getaways Resort charges \$260 per night for 2 people. For each additional guest, there is a fee of \$20 per person. Is this a proportional relationship? Justify your answer.

FOR TEACHER USE ONLY:

a. YES NO Student arrives at a correct solution?

	4	3	2	1
b. Conceptual Knowledge				
c. Procedural Knowledge				
d. Communication				



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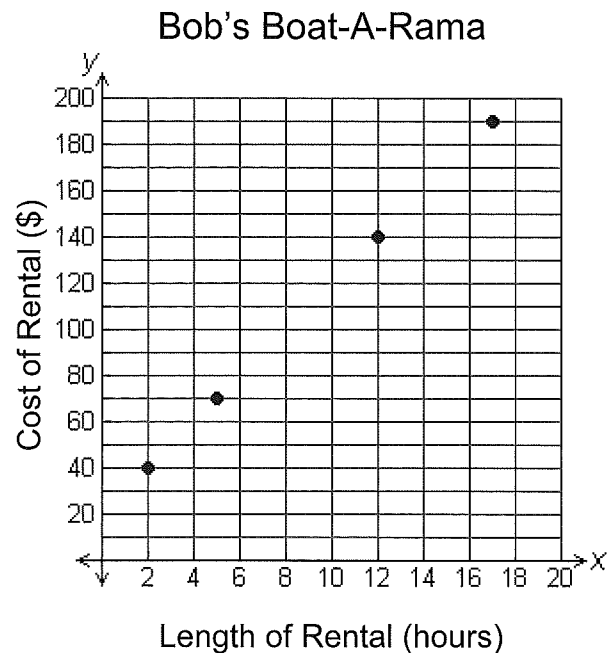
- 1 Pizza Plaza is having a special where medium pizzas cost \$5 each. Toppings can be added for \$0.75 each. Which equation could be used to determine the total cost, c , of 2 medium pizzas with 3 toppings each?

- A $c = 0.75 \cdot 2 + 5$
- B $c = 0.75 \cdot 3 + 5$
- C $c = 2(0.75 \cdot 2 + 5)$
- D $c = 2(0.75 \cdot 3 + 5)$

- 2 A car rental company charges \$0.85 per mile traveled. Which proportion could NOT be used to find x , the cost of renting a car to travel 200 miles?

- A $\frac{x}{0.85} = \frac{1}{200}$
- B $\frac{1}{200} = \frac{0.85}{x}$
- C $\frac{0.85}{1} = \frac{x}{200}$
- D $\frac{200}{x} = \frac{1}{0.85}$

- 3 The graph below represents the cost of renting a boat from Bob's Boat-A-Rama during the summer season.



What would be the cost of renting a boat for 1 hour?

- A \$20
- B \$30
- C \$40
- D \$50



- 4 Mr. Meadows needs to ship some boxes and has compared prices from 4 different shipping companies. Which shipping company's price table is based on a constant unit price?

I Ship 4U

A

Weight of box	Cost to ship
10 lbs	\$47
20 lbs	\$102
30 lbs	\$145
40 lbs	\$212

Shippers Away

C

Weight of box	Cost to ship
10 lbs	\$53
20 lbs	\$105
30 lbs	\$158
40 lbs	\$210

Ships Ahoy

B

Weight of box	Cost to ship
10 lbs	\$45
20 lbs	\$95
30 lbs	\$145
40 lbs	\$195

Shipping Tales

D

Weight of box	Cost to ship
10 lbs	\$56
20 lbs	\$112
30 lbs	\$168
40 lbs	\$224